LABORATORY NOTEBOOK

SERIAL No. RLA № 10512

ASSIGNED TO Michael DeRosa DEPT. Polymer Core Technology

FROM _____ TO _____

LAST PREVIOUS NOTEBOOK SERIAL No. 10345

LAST ENTRY _____ PAGE 154 DATE _____

SUCCEEDING NOTEBOOK 10695

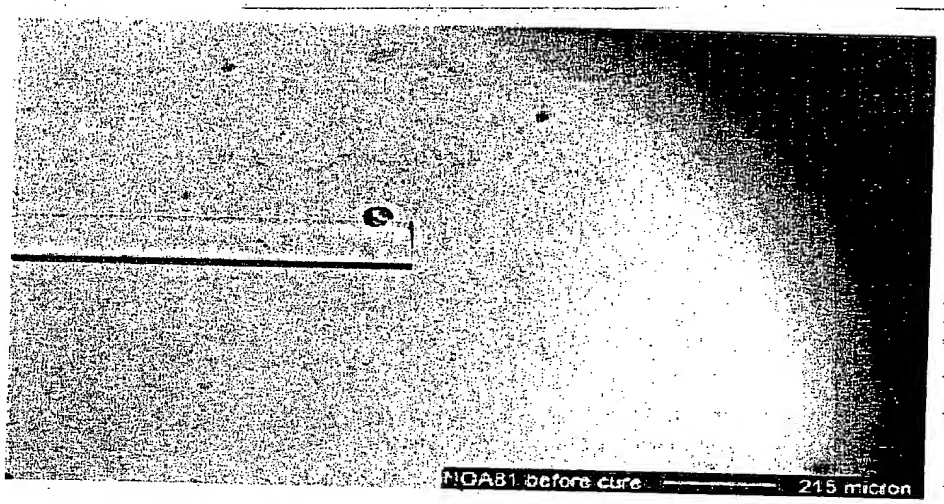
FIRST ENTRY DATE _____

TLE Cure of Adhesive Through Fiber DATE

IRPOSE Cure NOA81 UV curable adhesive at end of SMF28.

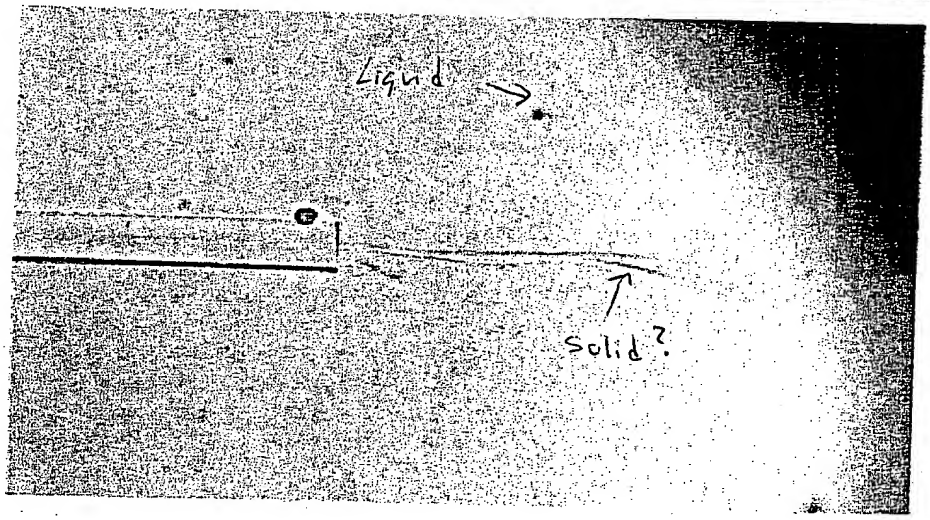
EFP01 End Fire pigtail 01

Before Cure.



After Cure

UV into fiber 2min with Green spot.



Adhesive appears to be cured in a tight cylinder at end of fiber

oject No.		Signature		Date
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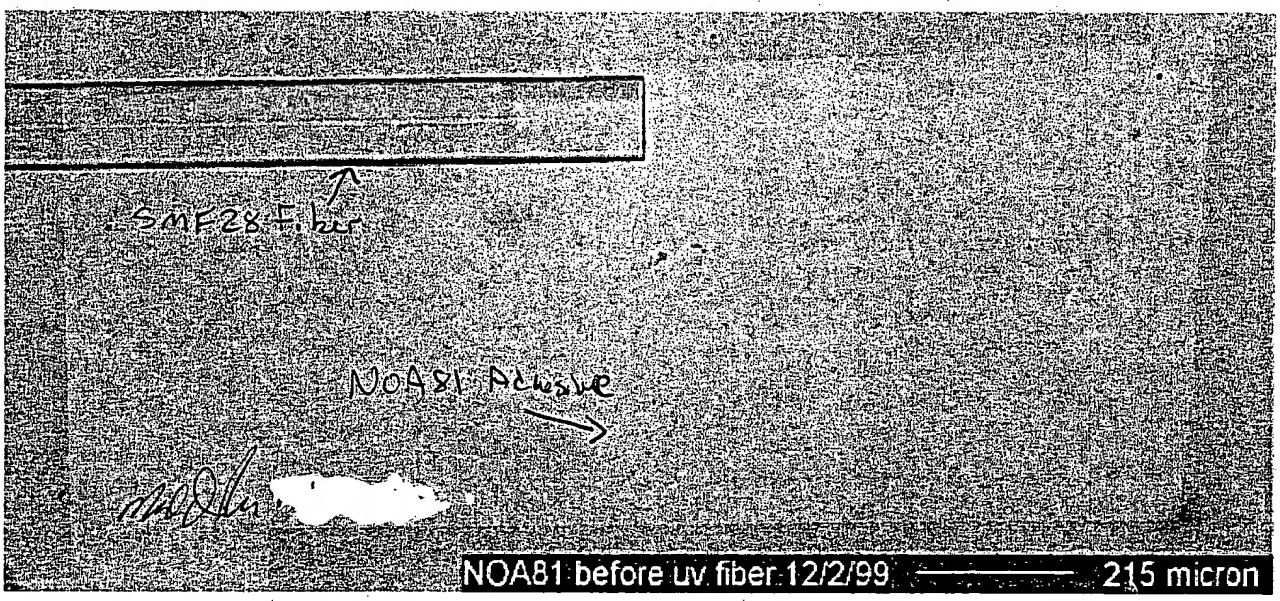
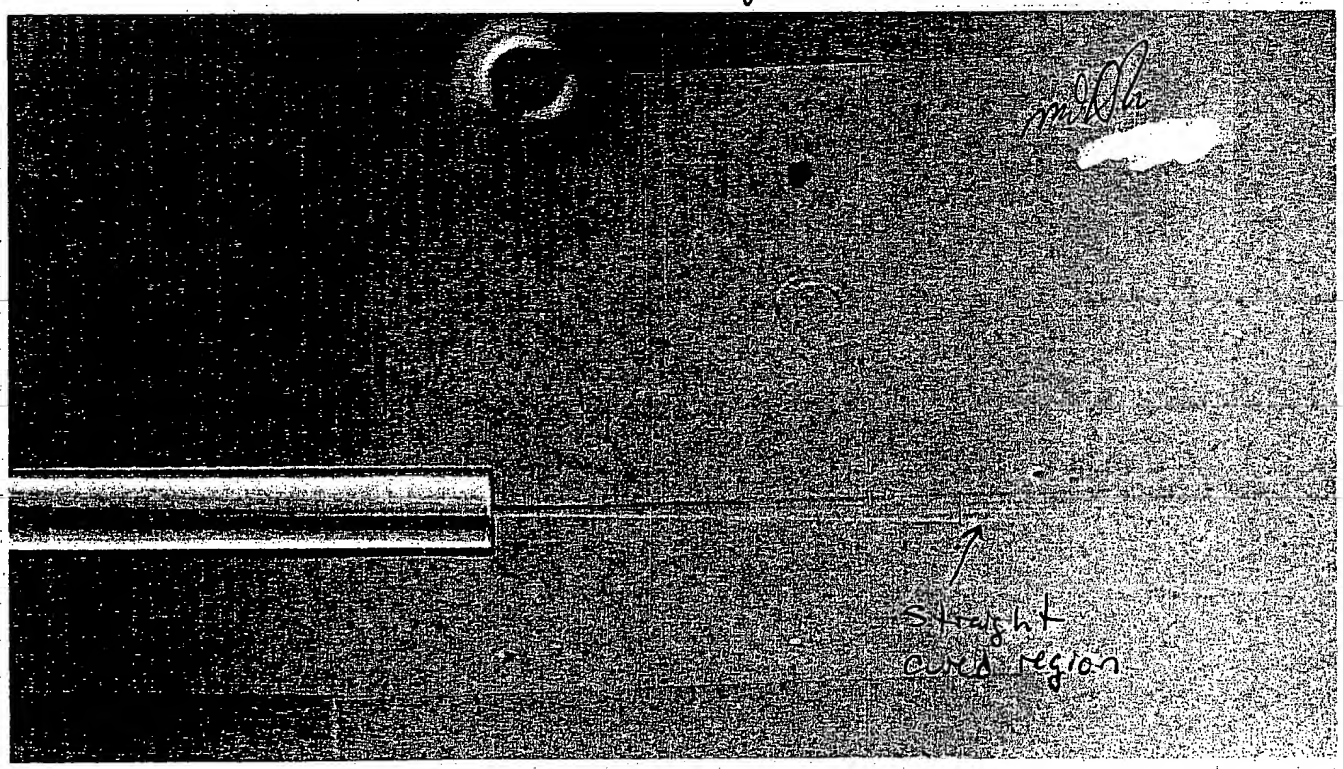
TLE UV Fiber End Fire Cure Technique DATE

RPOSE EFPO2



Before EndFire UV cure

Pre uv Flood drop on end of fiber for 30s to pre lock in NOA1 as a gel so I won't get convection currents during end Fire cure



Fire

h
engfor
60s.

UV endFire cured. Will the cured region waveguide?

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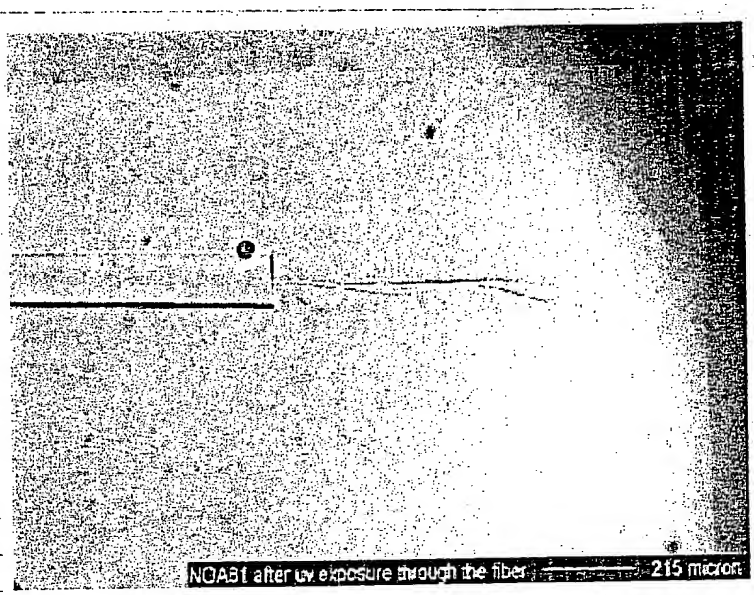
TITLE UV EndFire Cure. DATE

PURPOSE Comparison of precuring to liquid.

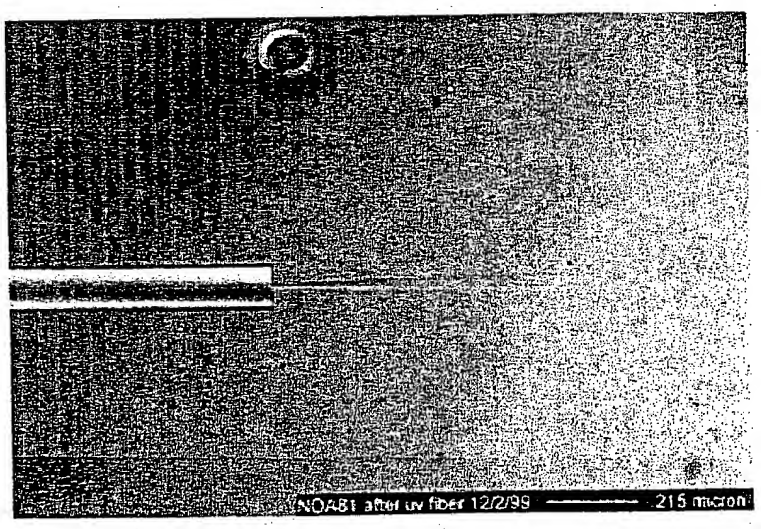
12/13/99 I tried shooting a HeNe down the sample. I could see red light comin at endon. But I could not see it perpendicular No enough scatter.

UV EndFire →

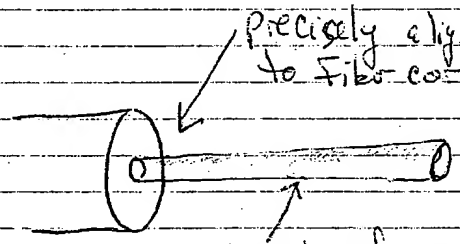


Liquid.

Swirly Pattern due to convection of uncured liquid



UV EndFire →



Precured Gel.

The gel locks in the structure so no convection currents can make swirls as above in liquid state.

Maybe a process used for pigtailing.

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TLE End Fire cure of adhesive DATE

JRPOSE

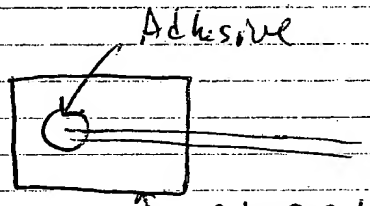
Sample. EFP03 (EndFire pigtail 03)

Material : NOA 81 Lot 127

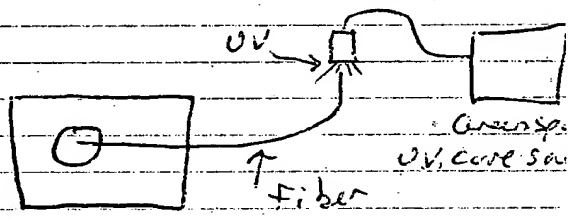
Flood to pregel with 30w lamp for 30s @4 cm distance.

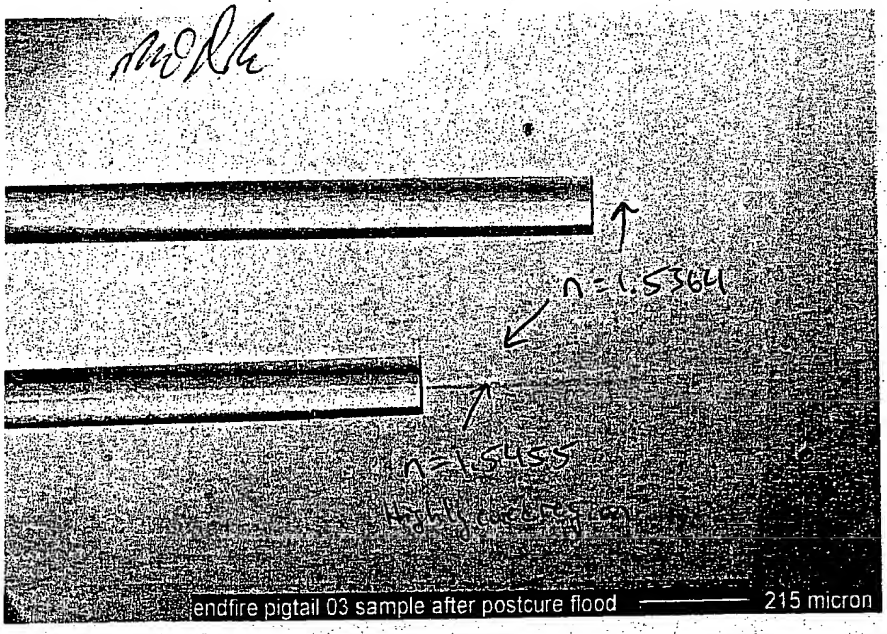
Use two Flat cleaved Fibers

After pregel stage, endfire cure one pigtail for 2min with Greenspot.



After endFire cure, post Flood light the sample with 30w lamp for 2min to lock in structure.





Project No.		Signature		Date
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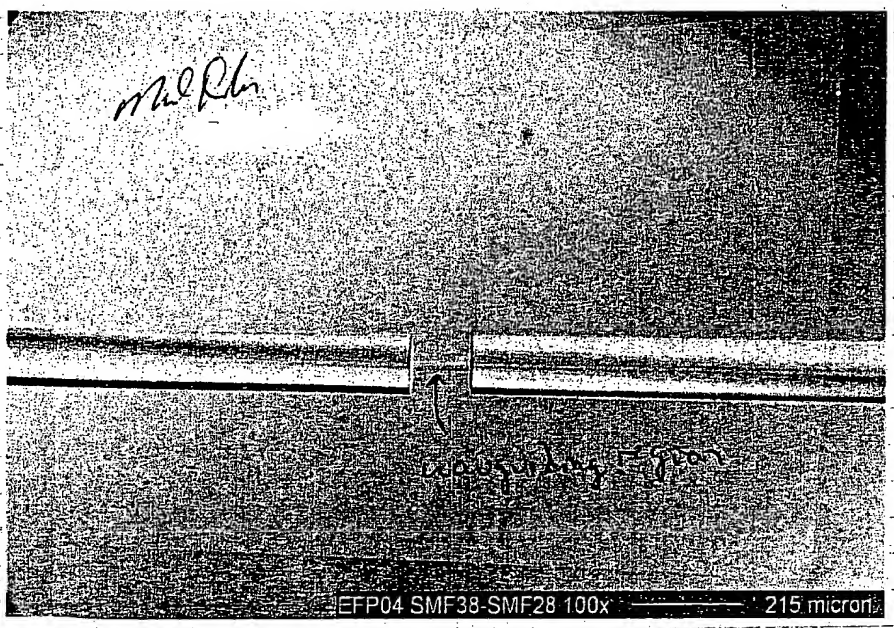
Simultaneous End Fire Curing DATE

OSE SMF28-SMF28 NOA 81

EFP04



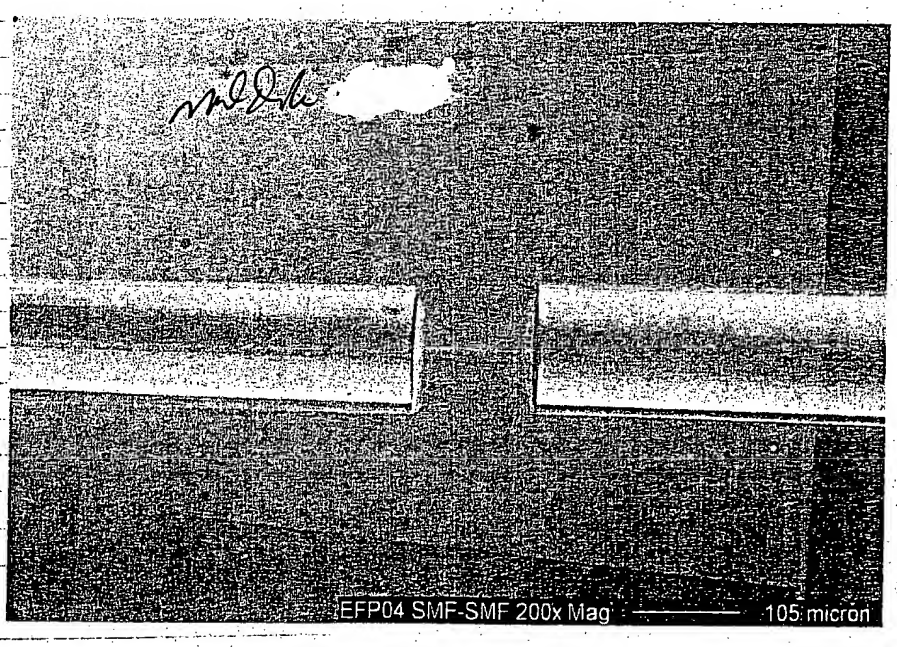
100x mag.

Possible Names

Bullseye© digital technology

Ghost splice©

Phantom splice©



200x mag.

Index difference is good enough to guide light.

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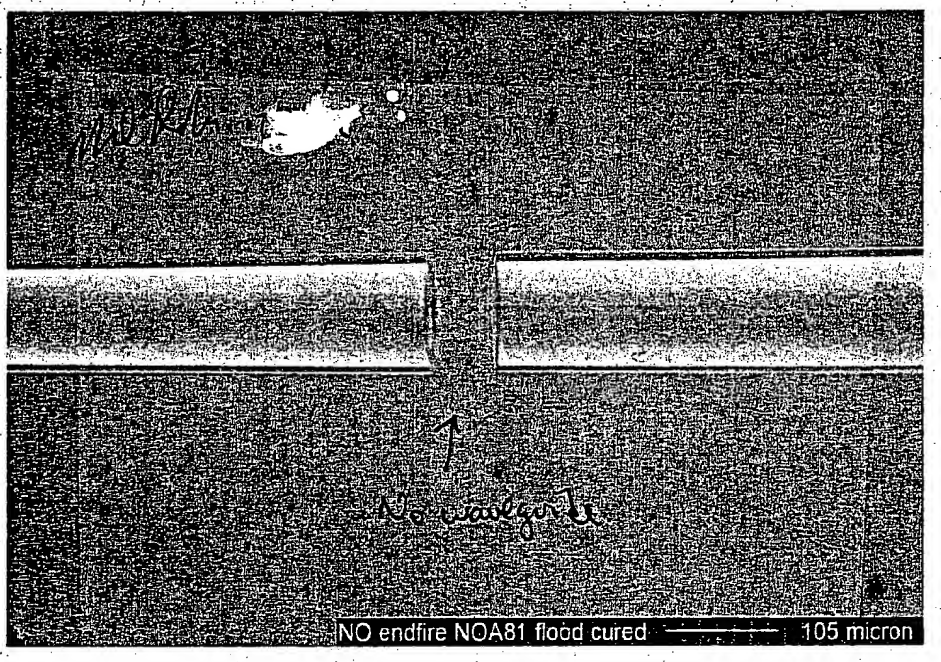
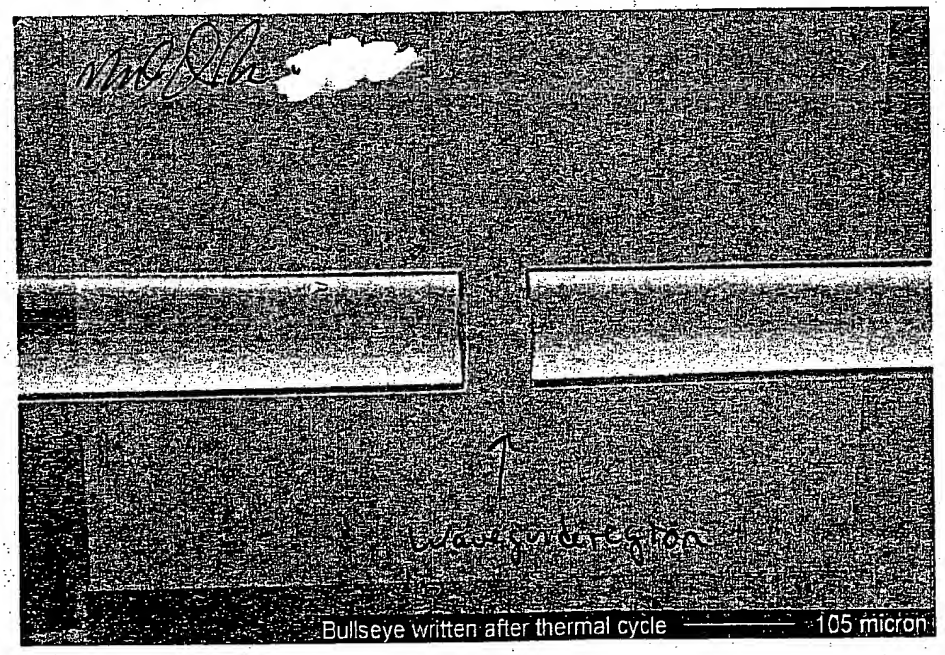
EFP05 Sample Before + After DATE

OSE

EFP05 Before + After Bullseye© Processing



SmFZ8-SmFZ8 Gap. This sample went trough thermal cycling on page 79.



After thermal cycling I wrote a Bullseye© waveguide between the two fibers

ect No.	Signature	Date
essed By	Date	Witnessed By	Date

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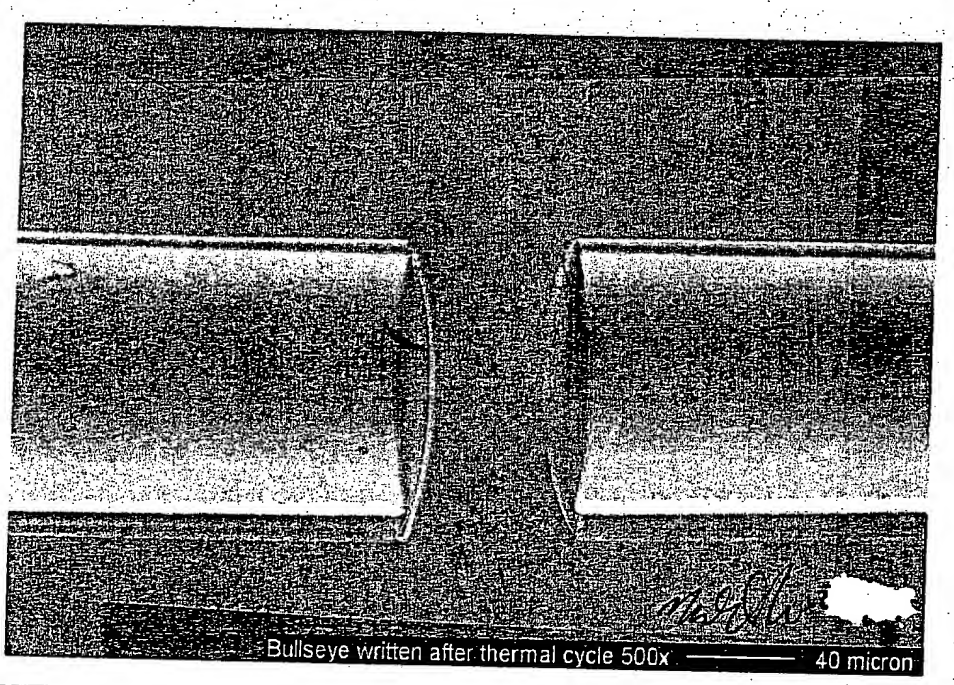
TITLE EFPOS After Waveguide Written DATE

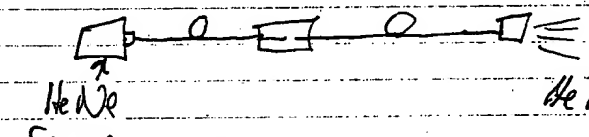
PURPOSE EFPOS After Bullseye©



Same sample as page 82 this notebook.

500x magnification

12/8/99. Used a fault locator pigtailed HeNe laser. I could not see any reflections until Bullseye joint. The light came at the other end of the other connector very bright.



Project No.		Signature		Date
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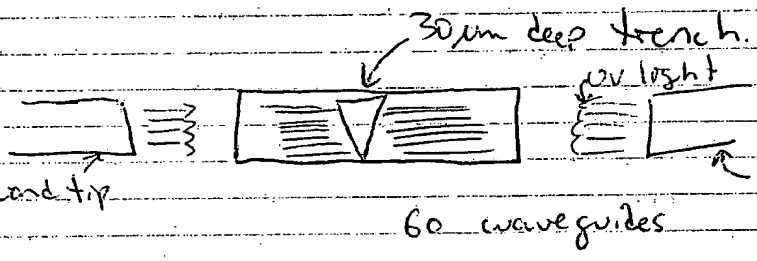
TITLE LOC Athermalization Device DATE

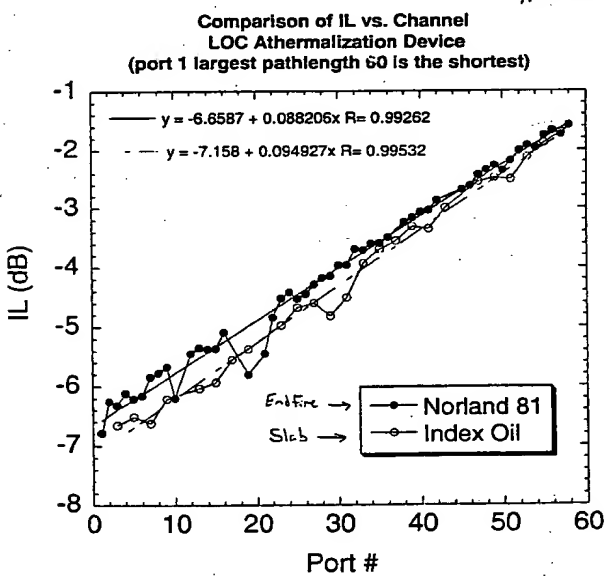
PURPOSE To see if endfire curing improves loss in LOC device



Fill trench with index oil to make slab waveguide.

Use NOA81 + endfire by placing UV wands (1x2 Green at end of fused silica block device

mW/h



Slope decreased by 7.1% From slab to endfire cure.

The endfire technique improved the loss modestly at the largest gap.

No change seen at shortest gap.

Slope decreased by 7.1%

Want slope to be flat across.

This method did not work most likely because UV overfilled the fused silica block.

Try butt coupling fibers to each channel actively align, then UV endfire cure to write waveguides.

Slight improvement in loss across the device

Project No.		Signature mW/h		Date
Witnessed By	Date	Witnessed By		Date